

CLAIMS

1. A method for producing a display front panel comprising a transparent substrate, a metal mesh layer laminated to at least one surface of the transparent substrate by a first transparent adhesive layer, and a near infrared ray shielding film laminated to the surface of the metal mesh layer by a second transparent adhesive layer, comprising the steps of:

(1) laminating a metal layer to at least one surface of a transparent substrate by a first transparent adhesive layer, thereby obtaining a laminate,

(2) providing a mesh-patterned resist layer on the metal layer face of the laminate, etching the metal layer to remove portions thereof that are not covered with the resist layer, and removing the resist layer, thereby forming a metal mesh layer having a mesh part with a plurality of openings, and a frame part around the mesh part, and

(3) laminating a near infrared ray shielding film to the face of the mesh part of the metal mesh layer by a second transparent adhesive layer, and filling the surface irregularities of the first adhesive layer exposed at the openings of the mesh part with the second adhesive layer to make the exposed roughened surface of the first adhesive layer transparent.

2. The method according to claim 1, wherein both the laminating of the metal layer to the transparent substrate and the laminating of the near infrared ray shielding film to the metal layer are conducted by dry laminating wherein continuous films are laminated by a winding-up loading and unloading system.

3. The method according to claim 2, wherein, in laminating the near infrared ray shielding film to the metal layer face by the winding-up loading and unloading system, at least one edge section of the frame part of the metal layer is exposed by making a width of the near infrared ray shielding film smaller

than that of the metal layer in the laminate film, wherein the width refers to a size in a direction perpendicular to a direction in which the near infrared ray shielding film and the laminate film containing the metal layer run.

4. A display front panel comprising:  
a transparent substrate,  
a metal mesh layer laminated to at least one surface of the transparent substrate by a first transparent adhesive layer, and

a near infrared ray shielding film laminated to a surface of the metal mesh layer by a second transparent adhesive layer, the metal mesh layer having a mesh part with a plurality of openings, the second adhesive layer filling surface irregularities of the first adhesive layer exposed at the openings of the mesh part to make the exposed roughened surface of the first adhesive layer transparent.

5. The display front panel according to claim 4, wherein the metal mesh layer further has a frame part around the mesh part, and at least one edge section of the frame part is exposed without being covered with the near infrared ray shielding film.